AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 to 4 (Cancelled).

5. (Currently Amended) A spent liquor recovery boiler system comprising:

a boiler further comprising a water or steam circulation system having superheaters and a furnace for recovering energy and chemicals from spent liquor combusted in the furnace;

walls of the boiler further comprising a plurality of water cooled tubes in fluid communication with the water or steam circulation system;

at least one cavity having cavity walls formed of water cooled tubes in fluid communication with the water cooled tubes in at least one of the walls of the boiler and the water or steam circulation system, wherein at least a portion of the water cooled tubes of the cavity walls are is formed of the water cooled tubes of the walls of the boiler;

a fuel combustor arranged in the at least one cavity;

at least one outlet for discharging combustion gases from the cavity to the boiler, and

an interior of the at least one cavity having a cavity heat exchanger for superheating steam generated by superheaters in the boiler.

6. (Cancelled)

7. (Previously Presented) The system according to claim 5 wherein the at least one cavity is located on a front wall of the boiler.

8. (Previously Presented) The system according to claim 5 wherein the at least one outlet of the cavity is in a front wall of the boiler and said outlet is opposite to a bullnose section of a rear wall of the boiler.

9. (Previously Presented) The system according to claim 5 wherein the at least one outlet for the cavity is connected to the boiler and provides a conduit for combustion gases from the at least one cavity to be discharged immediately upstream of the superheaters of the boiler.

10. (Currently Amended) A liquor recovery boiler system comprising:

a boiler further comprising at least one wall defining a furnace, at least one liquor injector arranged to inject liquor into the furnace, and at least one superheater arranged in a flue gas passage for combustion gases generated in the furnace,

a plurality of water cooled tubes arranged in the at least one wall defining the furnace;

at least one cavity separate from the furnace and having walls formed of water cooled tubes, wherein fluid flowing through the water cooled tubes of the wall defining the furnace flows through the water cooled tubes of the cavity and to the at least one superheater, and wherein at least a portion of the water cooled tubes of the at least one cavity are formed of the water cooled tubes of the walls of the boiler;

a fuel combustor arranged in the at least one cavity;

at least one outlet for discharging combustion gases from the cavity to the boiler; ~~and~~

an interior of the at least one cavity being provided with a heat exchanger which receives superheated steam from the at least one superheater, and

a gasifier for gasifying a biomass material and said gasifier produces combustion gas provided to the fuel combustor of the cavity.

11. (Previously Presented) The liquor recovery boiler system of claim 10 wherein the liquor injector discharges spent liquor into the furnace.

12. (Previously Presented) The liquor recovery boiler system of claim 10 wherein the at least one superheater is a plurality of superheaters arranged in a flue gas stream of the boiler.

13. (Cancelled)

14. (Previously Presented) The liquor recovery boiler system according to claim 10 wherein the at least one cavity is located on a front wall of the boiler.

15. (Previously Presented) The liquor recovery boiler system according to claim 10 wherein the at least one outlet for combustion gases is connected to the boiler and provides a conduit for combustion gases from the at least one cavity to be discharged immediately upstream of the superheaters of the boiler.

16. (Previously Presented) The liquor recovery boiler system according to claim 10 wherein the outlet of the cavity is in a front wall of the boiler and said outlet is opposite to a bullnose section of a rear wall of the boiler.

17. (Cancelled)

18. (Previously Presented) The liquor recovery boiler system according to claim 10 wherein the cavity is adjacent an outside surface of the at least one wall of the furnace.

19. (Currently Amended) A method for superheating steam in a recovery boiler having at least one wall defining a furnace and a separate combustion cavity, said method comprising:

a. injecting spent liquor in the furnace to generate hot combustion flue gases in the boiler;

b. cooling the at least one wall by flowing cooling fluid through the wall;

c. generating hot combustion gases in the cavity;

d. cooling a cavity wall of the cavity by flowing the cooling fluid from the wall of the boiler through the wall of the cavity, wherein the cavity wall having cooling fluid is at least partially formed of the wall of the boiler, and

e. passing cooling fluid from the wall of the cavity to a superheater arranged in a flue gas passage of the boiler.

20. (Previously Presented) The method of claim 19 wherein the hot combustion gases in the cavity are discharged into the boiler upstream of the superheater.

21. (Previously Presented) The method of claim 19 further comprising passing fluid from the superheater in the gas passage of the boiler to a heat exchanger in the cavity.

22. (Previously Presented) The method of claim 19 wherein the cooling fluid flows vertically upward through the wall of the furnace and then to the cavity.

23. (Previously Presented) The method of claim 19 wherein the cooling fluid in the superheater is heated to a temperature no greater than 520^0 C.

24. (Previously Presented) The method of claim 19 further comprising passing fluid from the superheater in the gas passage of the boiler to a heat exchanger in the cavity, and wherein the fluid in the superheater is heated to a temperature no greater than 520^0 C and the fluid in the heat exchanger is heated to a temperature in a range of 500^0C to 600^0C.

25. (Previously Presented) The method of claim 19 further comprising passing fluid from the superheater in the gas passage of the boiler to a heat exchanger in the cavity, and wherein the fluid in the superheater is heated to a temperature in a range of 480^0C to 520^0 C and the fluid in the heat exchanger is heated to a temperature in a range of 500^0C to 600^0C.

26. (Previously Presented) The method of claim 19 wherein the combustion gases in the cavity are generated by combustion gases generated in a gasifier that gasifies a biomass material.

27. (Previously Presented) The method of claim 26 wherein the biomass material is selected from a group consisting of oil, methanol and liquefied biomass.

28 (New) A method for superheating steam in a recovery boiler having at least

one wall defining a furnace and a separate combustion cavity, said method comprising:

a. injecting spent liquor in the furnace to generate hot combustion flue gases in the boiler;

b. directing the flue gases through a flue gas passage of the furnace;

c. generating hot combustion gases in the cavity;

d. injecting the hot combustion gases from the cavity into the furnace at an opening in the furnace proximate to a narrow portion of the flue gas passage, and

e. the injection of the hot combustion gases from the cavity mixes with the flue gas in the flue gas passage as the flue gas flows past the narrow portion.

29 (New) The method of claim 28 wherein the narrow portion includes a bull nose section in a side wall of the flue gas passage and the hot combustion gases from the cavity are injected into an opening on a sidewall of the flue gas passage opposite to the bull nose section.

30 (New) The method of claim 29 wherein the injection of the hot combustion gases from the cavity shapes the flue gas so as to flow over the narrow portion and into an expansion portion of the flue gas passage above the narrow portion.

31 (New). The method of claim 28 wherein the injection of the hot combustion gases includes promoting selective non-catalytic reduction (SNCR) to bring the flue gases to a temperature suitable for SNCR.

32 (New). A liquor recovery boiler system comprising:

a boiler including walls defining a furnace and a flue gas passage, at least one

liquor injector arranged to inject liquor into the furnace, and at least one superheater arranged in the flue gas passage for combustion gases generated in the furnace and flowing through the flue gas passage;

water cooled tubes arranged in at least one of the walls defining the furnace;

a combustion cavity separate from the furnace and having a cavity wall formed of water cooled tubes;

a fuel combustor arranged in the at least one cavity;

a cavity combustion gas outlet discharging combustion gases from the cavity to the boiler, wherein the combustion gas outlet is proximate a narrow section of the flue gas passage and the combustion gases from the cavity mix with flue gases passing through the narrow section.

33 (New) The liquor recovery boiler system as in claim 32 wherein the narrow section is a bull nose section of the flue gas passage and the combustion gas outlet is at an elevation substantially the same as an elevation of the bull nose section.

34 (New). The liquor recover boiler system as in claim 32 wherein the water cooled tubes of the cavity wall are in fluid communication with the water cooled tubes in the walls defining the furnace, and the system including:

a superheater in the furnace generating superheated steam, and

a cavity heat exchanger receiving superheated steam from the superheaters in the furnace.

35 (New). A method of supherheating steam in a recovery boiler having at least

one wall defining a furnace and a separate combustion cavity having a cavity wall formed of water cooled tubes, wherein the water cooled tubes are in fluid communication with water cooled tubes in the walls defining the furnace, said method comprising:

a. injecting spent liquor and air in the furnace to generate hot combustion flue gases in the boiler;

b. generating hot combustion gases in the cavity,

c. injecting the hot combustion gases from the cavity into the furnace for shaping a flow patter of flue gases in the boiler to improve mixing.

36 (New). The method of claim 35 wherein the hot combustion gases from the cavity are injected through vertically located ports in the walls defining the furnace.

37 (New). The method of claim 36 wherein the hot combustion gases from the cavity are mixed with the air from step (a).

38 (New). The method of claim 19 wherein the hot combustion gases from the cavity are discharged for shaping a flow pattern of the flue gases in the furnace.